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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MARIAM, DANIEL G	
ART UNIT	**PAPER NUMBER**
2621	

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/004,580	SONMEZ ET AL.	
	Examiner	Art Unit	
	DANIEL G MARIAM	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-36 is/are pending in the application.

4a) Of the above claim(s) 32-36 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-31 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12/3/01 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/8/02, 11/4/02 & 5/16/03
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-31, drawn to determining both similarities and differences of an image, classified in class 382, subclass 219.

II. Claims 32-36, drawn to data linking, classified in class 382, subclass 284.

The inventions are distinct, each from the other because: Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the invention I, for example claim 1, does not require the linking of data that are similar and dissimilar as recited in claim 32. The subcombination has separate utility such as linking.

2. During a telephone conversation with King-Wah Tong (Reg. No. 39,400) on February 14, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-31. Affirmation of this election must be made by applicant in replying to this Office action. Claims 32-36 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

3. Claim 18 is objected to because of the following informalities: in claim 18, the limitation "similarity differ" recited in line 2 appears to be grammatically awkward. A similar limitation also occurs in claim 31. Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 29 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 29 recites the limitation "software configured to . . . " is non-statutory. A program (or software) is functional descriptive material, and is only statutory when embodied in a computer readable medium (See MPEP 2106).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 28 recites the limitation "a medium carrying a model capable of enabling a machine to perform comparisons . . " It is unclear how the model is carried by a medium without some type of instructions or program. Please clarify.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-5, 7, 12, 15-23, 25 and 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Sundaresan, et al. (6,606,620).

With regard to claim 1, a method comprising: specifying a model, i.e., class model, that (i) represents a set of structured data objects that include elements at particular positions, and (ii) comprises distributions of vectors, i.e., subvectors, each distribution corresponding to particular positions (in the tree structure shown in Figure 4, each node represents a sub-vector and/or sub-subvector, and each node corresponds to a defined position) in the respective structured data objects each of the vectors comprising values, i.e., 1, 2, 3 . . N, for the particular positions, at least some distributions indicating dissimilarity at particular positions of the structured data objects; and comparing a given set of structured data objects to the model to determine a likelihood, i.e., similarity that the given set is represented by the model (See col. 3, lines 1-20; col. 4, lines 27-63; and Figure 4).

With regard to claim 2, the method of claim 1 in which the structured data objects comprise sequences (See for example, col. 8, lines 41-56).

With regard to claim 3, the method of claim 1 in which the structured data objects comprise multi-dimensional maps (the web document image shown in Fig. 1 are generally two-dimensional. i.e., multi-dimensional).

Claim 4 is rejected the same as claim 3. Thus, argument similar to that presented above for claim 3 is equally applicable to claim 4.

With regard to claim 5, the method of claim 1 in which the structured data objects each comprises an image (See col. 6, lines 48-57).

With regard to claim 7, the method of claim 4 in which the particular positions of the two dimensional map comprise pixels. This feature is considered inherent because in the image/gif format, the image data is always stored using pixels.

With regard to claim 12, the method of claim 2 in which the sequences comprise financial or economic information (which reads on col. 1, lines 23-27).

With regard to claim 15, the method of claim 2 in which elements of each of the sequences comprise at least two values (See for example, col. 8, lines 50-56).

With regard to claim 16, the method of claim 1 in which the model is trained to determine at least some of the distributions (See for example, Fig. 7).

With regard to claim 17, the method of claim 1 in which at least some others of the distributions indicate similarity (See for example, item 10, in Fig. 2).

With regard to claim 18, the method of claim 17 in which at least some of the distributions that indicate similarity differ (See item 10, in Fig. 2).

With regard to claim 19, the method of claim 1 further comprising repeating the comparing for multiple given sets (which reads on item 20 in Figure 2, where the classifier performs the comparison for several WWW documents).

With regard to claim 20, the method of claim 19 further comprising ranking the multiple given sets by the likelihoods returned by the model for each given set (See item 410, in Fig. 7; and which also reads on col. 7, lines 59-62).

With regard to claim 21, the method of claim 1 in which the given sets consist of two structured data objects (See for example, items 50, 55, and 60, in Fig. 1).

With regard to claim 22, the method of claim 19 in which the multiple given sets comprise pairwise combinations, i.e., linking, of a first and second group of structured data objects, each pairwise combination including an object of the first group and an object of the second group (See col. 7, lines 43-47).

With regard to claim 23, the method of claim 1 in which each distribution is represented as a node in a network of nodes (See for example, Fig. 4).

With regard to claim 25, the method of claim 23 in which interconnections between nodes are associated with a probability (See col. 8, lines 50-65).

With regard to claim 27, the method of claim 23 in which the comparing comprises identifying a path that traverses the network of nodes, the path corresponding to the given set, and evaluating the likelihood of the path (col. 8, lines 50-65).

With regard to claim 28, claim 1 encompasses the limitation of this claim, and thus argument analogous to that presented above for claim 1 is equally applicable to claim 28. Sundaresan, et al. further discloses a medium carrying a model capable of enabling a machine to perform comparisons of a set of structured data objects to the model (See Figure 1; and col. 7, lines 19-47).

Please note, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. The limitation *capable of* enabling a machine to perform comparison is not a positive limitation but only requires the ability to so perform. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

Claim 29 is rejected the same as claim 28. Thus, argument similar to that presented above for claim 28 is equally applicable to claim 29.

Claim 30 is substantially identical to claim 1. Thus, arguments presented above for claim 1 are not repeated herein, but are incorporated by reference. Claim 30 slightly distinguishes from claim 1 only in that it recites the limitation specifying a model that comprises distributions of vectors, each distribution corresponding to particular positions

in the respective structured data objects such that each of the vectors comprises values for the particular positions, wherein at least some distributions indicate similarity between the structured data objects at particular positions and at least some others indicate matching to a reference structure data object at particular positions. However, Sundaresan (See for example, Col. 3, lines 1-29) teaches this feature.

With regard to claim 31, the method of claim 30 in which at least some of the distributions that indicate similarity differ (See item 10, in Fig. 2).

Claim Rejections - 35 USC § 103

9. Claims 10, 11, 13, 14, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundaresan (6,606,620) in view of Krogh, et al. (Hidden Markov Models in Computational Biology Applications to Protein Modeling).

With regard to claim 26, Sundaresan discloses all of the claimed subject matter as already presented above in paragraph 8, and is incorporated herein y reference. Sundaresan does not expressly call for the network of nodes comprising a hidden Markov model. However, Krogh (See for example, Page 1503, Section 2) teaches this feature. Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the teaching as taught by Krogh, et al into the system of Sundaresan if for no other reason than to provide a statistical model, such as a hidden Markov model, and to do would at least aid to correctly detect events in the structured data objects.

With regard to claims 10, the method of claim 2 in which the sequences comprise audio information (See for example, page 1502, left col., first paragraph of Krogh, et al).

With regard to claim 11, the method of claim 10 in which in which the audio information comprises representations of speech (See for example, page 1502, left col., first paragraph of Krogh, et al).

With regard to claim 13, the method of claim 2 in which the sequences comprise biopolymer sequences, i.e., protein sequences (See page 1503, left col., section 2, 1st paragraph of Krogh, et al).

With regard to claim 14. The method of claim 2 in which elements of each of the sequences consist of a single value (See for example, page 1506, section 2, sub-section "e"; and Fig. 1 of Krogh, et al).

With regard to claim 24, the method of claim 23 in which the network further comprises nodes that represent an insertion or deletion in an object of the set relative to another object of the set (See for example, page 1503, section 2, 3rd paragraph of Krogh, et al).

10. Claims 6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sundaresan (6,606,620) in view of Mike, et al. (5,787,414).

With regard to claim 6, Sundaresan discloses all of the claimed subject matter as already presented above in paragraph 8, and is incorporated herein by reference. While the web document of Sundaresan is generic and contains a collection of various data, Sundaresan does not expressly call for the image being a photographic image. However, Mike, et al. (See for example, Fig. 140) teaches this feature. Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the teaching as taught

by Mike, et al. into the system of Sundaresan so that data may be represented by pictorial images, and to do would at least make the classification process easier.

With regard to claim 8, the method of claim 7 in which each pixel comprises color information (See item 211, in Fig. 142 of Mike, et al).

With regard to claim 9, the method of claim 8 in which the color information comprises at least two values (See 212 & 213, in Fig. 142 of Mike, et al).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Numbers: 5600826 and 6618725.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G MARIAM whose telephone number is 703-305-4010. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BHAVESH MEHTA can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DANIEL MIRIAM
PRIMARY EXAMINER

February 18, 2005